

ABSTRACT OF THE DISCLOSURE

To transfer signal charges at high speed with small noise, there is provided a charge transfer apparatus including a semiconductor substrate of one conductivity type, a charge transfer region of a conductivity type opposite to that of the semiconductor substrate that is formed in the semiconductor substrate and joined to the semiconductor substrate to form a diode, a signal charge input portion which inputs a signal charge to the charge transfer region, a signal charge output portion which accumulates the signal charge transferred from the charge transfer region, and a plurality of independent potential supply terminals which supply a potential gradient to the semiconductor substrate, wherein the signal charge in the charge transfer region is transferred by the potential gradient formed by the plurality of potential supply terminals.